OPERATORS MANUAL

for Displacement Filler

DF32

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Declaration of conformity:

We Flexicon A/S
Frejasvej 2-6
DK-4100 Ringsted

declare on our sole responsibility that the product:

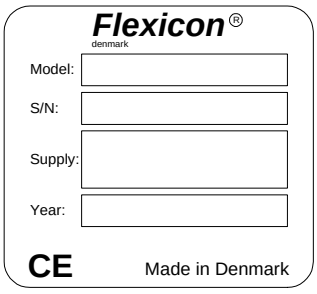
Displacement Filler - **DF32** - Single Unit Filler

to which this declaration relates is in conformity with the following standard(s):

EN 292	Safety of machinery: Basic concepts. General principles of design.
EN 60204-1	Electrical equipment on machines. General principles of design.

according to the provisions in the Directives:

Directive 73/23 EEC	Low voltage electrical materials
Directive 89/336/EEC	Electromagnetic compatibility (EMC)
Directive 98/37/EEC	Machines



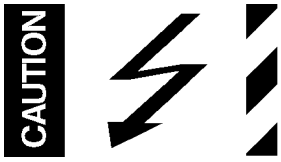
Ringsted 2002-09-04 Mads Ulric Jensen
Signature.

Caution:

This manual should be read before using the DF32.

Explanations to the pictograms:
Warning against touching/Warning against opening:

Warning against high voltage:



The mains switch is used for emergency stopping.

The DF32 should only be used for dosing and filling of viscous fluids.

The DF32 must be placed on a stable bed plate.
It should not be exposed to great humidity, high temperatures or other abnormal operating-environments.
It is not to be used in explosion hazardous environments.

It is prohibited to maintain or clean the DF32, when it is connected to the power supply.

It is prohibited for unauthorised personnel to open the cover of the DF32's electrical parts.

Always remember that the DF32 must be earthed by way of the switch.

Handle the filling needles with caution.

1: GENERAL INFORMATION

1.1 Use

DF32 is a fully programmable, displacement filler (dispenser) which as a single unit can dispense liquids of volumes from 10 ml up to more than 2500 ml.

DF32 has been specially developed for laboratory and small scale industrial applications where gentle handling of product, absolute accuracy and minimum use of time for preparation of production are key parameters.

DF32 is programmable for a number of different applications, and full production documentation can be printed, if a printer is connected.

This manual contains all information necessary for the daily operation of the unit and so the DF32 manual should be read before using the filler.

1.2 Unpacking and inspection

Please check that all ordered items have been received and that no items were damaged during transport. In case of any defects or omissions, please contact Flexicon A/S or your local supplier immediately.

When ordering spare parts or accessories for the DF32, please state the serial number. The serial number is stamped on the label on the bottom of DF32.

ALWAYS REMEMBER that this machine must be earthed.

1.3 The pump head.

DF32 operates with a positive displacement pump, which has a very low impact on the product.

The pump head is made of materials which are compatible with pharmaceutical products.
The materials used are stainless steel AISI 316 and plastic PEEK.

The displacement pump of the DF32 is not suitable for products containing particles.

1.4 Installation

DF32 must be placed on a stable bed plate. All connections are on the rear of the machine.

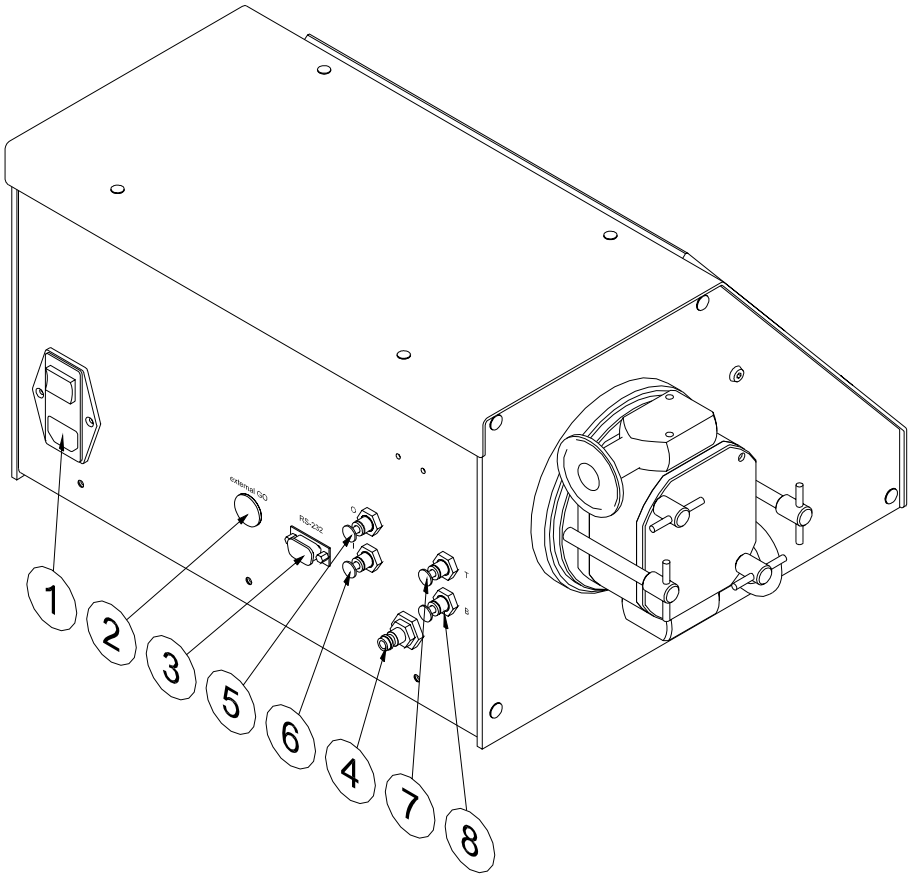


Fig. 1

Electrical connections:

1 The main cable supplied is connected to the integrated main socket (1) in the main isolator, which also contains master fuses. The plug is connected to an earthed switch.

2 **External GO** plug for the connection of a foot switch or for an external starting signal.

3 **RS-232** plug for printer connection.

Connections of pneumatics:

4 If DF32 is to run with pneumatic equipment, a supply of compressed and dry air should be connected to the quick release clutch (4).
The female part of the quick release clutch is supplied with the machine, but is not fitted.

Filling nozzles with pneumatic cut-off valves:

5 Nozzles with internal cut-off valve shall be connected to connector 5.

6 Nozzles with external cut-off valve shall be connected to connector 6.

Pneumatically driven diving nozzles:

7 Hoses giving the downward movement should be connected to connector 7,

8 Hoses giving the upward movement should be connected to connector 8.

1.5 Fitting of filling stand.

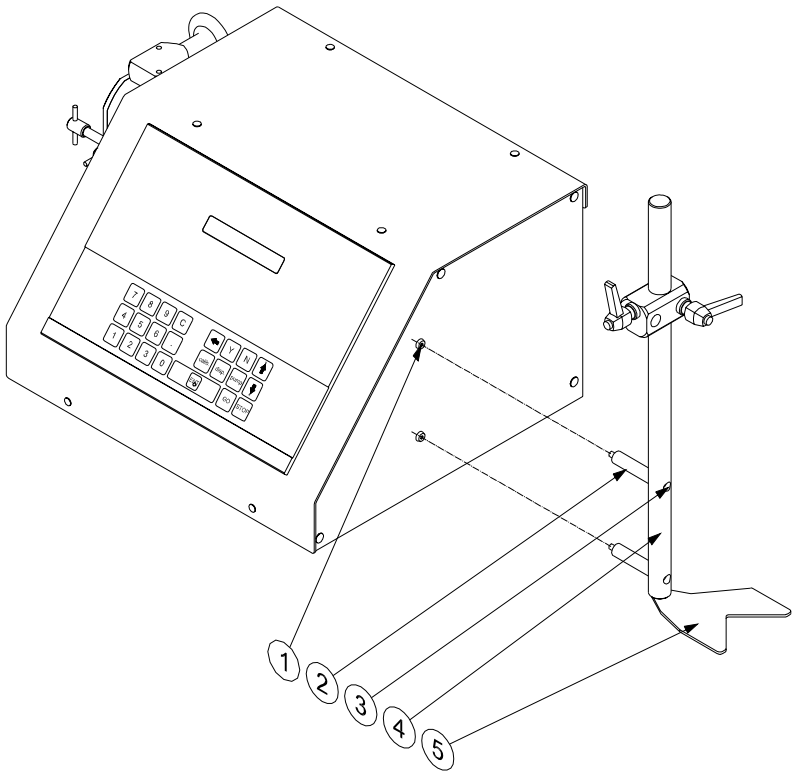


Fig. 2

The filling stand can be fitted to both ends of DF32.

First remove the screws (1)

Now you are able to fit the filling stand (4) by using the supplied distance tubes (2) and the screws (3).

The bottle guide (5) can be turned upside / down for adjusting to low or high bottles or containers.

DF32 is now ready to be switched on and to be programmed.

2: CONTROL

2.1 Filler lay-out

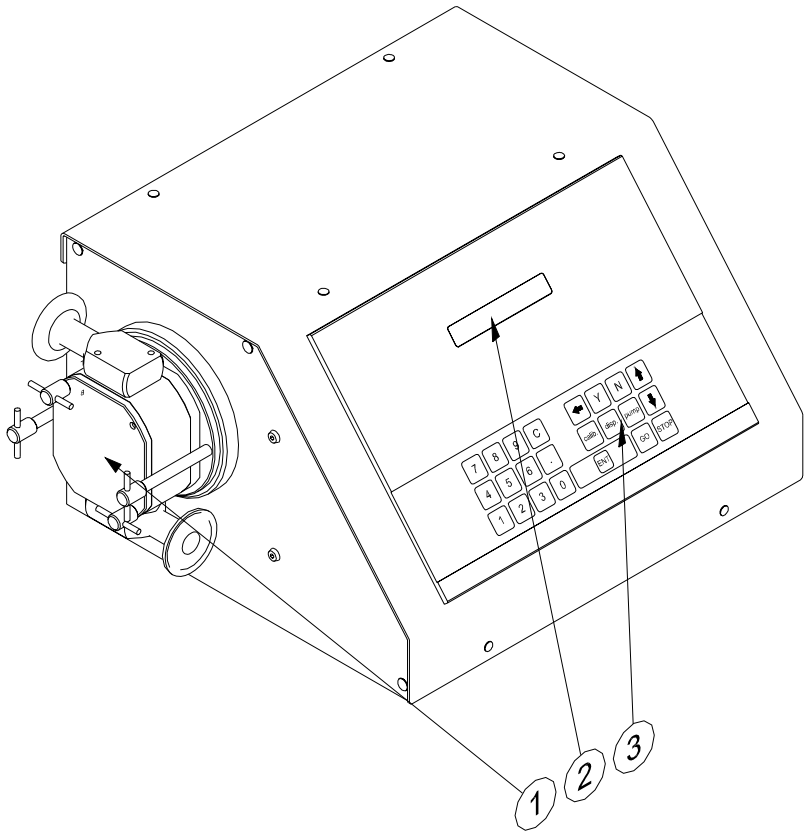


Fig. 3

1 Dispenser head

2 Display

3 Membrane-type keyboard

2.2 Dispenser head

The dispenser head can be equipped with connectors for different tube dimensions or a hopper for product intake. For product dispensing the dispenser head can be equipped with connectors for different tube dimensions.

The dispenser head is fitted with a safety system which prevents starting of the machine without the head mounted on the machine.

2.3 Display

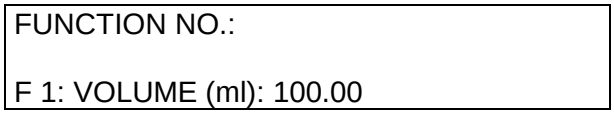


Fig. 3

The display of DF32 consists of 2 lines of 24 characters each and has constant background lighting.

There will always be a blinking cursor on the display, which indicates where a character will appear, if a key is activated.

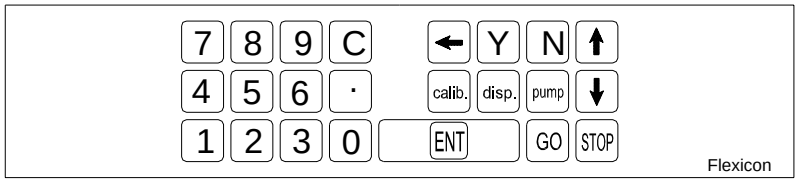
The top line is the prompt line where DF32 communicates with the operator.

The bottom line is the status line that always shows the current operating parameters. This status line can be scrolled by pressing the UP or DOWN ARROW of the keyboard.

When operating DF32, it is VERY important to watch the top line constantly, as any current question or instruction will be displayed here.

2.4 Keyboard

It is a foil-type keyboard with built-in click. The keyboard is quite tight and plane and can be cleaned with alcohol and other detergents.



7 8 9 C
4 5 6 .
1 2 3 0 Numerical keys from 0 to 9 as well as point and C (delete) key.

← Delete character just in front of cursor.

Y "Yes key" for Yes/No questions on display.

N "No key" for Yes/No questions on display

↑ Moves the status lines one line up.

↓ Moves the status lines one line down.

calib. Activates calibration.

disp. Activates filling.

pump Activates continuous pumping

ENT Enter/return to enter the text typed in.

GO Start button.

STOP Stop button

3: PROGRAMMING

3.1 Starting DF32

When turning on the main switch, the display will show the following:

DF32 V1.1 (C) Flexicon' 00 PRESS GO TO CONTINUE

Press the <GO> key, and the display will show the following:

FUNCTION NO.: F 1: VOLUME (ml): 100.00

The value shown in the status line will be the above or the last value used.

DF32 is now ready to be programmed.

3.2 Parameters

In the following, a parameter will be the value of a single function, for instance volume, velocity or number of fills.

3.3 Programs

In the following descriptions, a program will be a complete set of parameters which together will constitute the DF32 work instructions.

3.4 General information on the programming of DF32

DF32 is equipped with a battery in the memory and will therefore always remember the programmed parameters, even if the main isolator is turned off.

The programming is done using functions, i.e. every operating parameter has its own function number.

The programming is carried out by entering the function number followed by "ENT".

This will make the required function appear in the prompt line of the display and show the current value or information of the function.
This value will automatically be overwritten when entering a new value.
After being entered, the new value will be shown in the prompt line. The new value is entered into the computer by pressing "ENT".
The new value will be shown in the status line at once.

Example:
If a volume of **8.5 ml** is required, the following must be entered:
<1>+<ENT>+<8>+<.>+<5>+<ENT>

3.5 List of functions

1. Volume
3. Velocity
4. Acceleration/deceleration
5. Reversing (back suction)
6. Batch size
7. Delay
8. Completed fills
9. Specific gravity
10. Filling rate
15. Input mode
18. Timer 2
20. Operator number
21. Batch number
24. Print status
29. Print parameters
31. Save program
32. Load program
33. Delete program
34. Print programs
46. Set language
47. Printer set-up
72. Volume format
80. Reset memory

3.6 Description of functions

The individual functions will be described in the following:

1. Volume
Value: Choice of ml and grams.
Required volume from 0.01 to 9999.9 ml.

3. Velocity
Value: Revolutions per minute (rpm).
Enter the required velocity.
Min.: 30 rpm.
Max.: 500 rpm.

4. Acceleration/deceleration
Value: An integral number.
The filling can start and stop more or less abruptly.
This function offers a choice of values between 1 and 100.
1 = slowest acceleration.
100 = fastest acceleration.

5. Reversing (back suction)
Value: An integral number.
When the filling stops, the filler can be asked to produce a minor back suction to prevent dripping.
The back suction can be set at values between 0 and 10.
0 = no back suction.
10 = maximum back suction.

6. Batch size
Value: Number.
Enter the number of fills you want the filler to perform when started by <GO>, foot switch or via electrical signal. Any number of fills between 1 and 65,000 can be selected.
When the filler is operating in automatic system, where the system itself starts the filler each time a bottle is in position, THE VALUE IN THIS FUNCTION MUST ALWAYS BE 1.

7. Delay
Value: Seconds.
If more than one fill is chosen in function 6, enter the required delay between the fills.
The value of the delay can range between 0.1 - 25.0 seconds, with a graduation of 0.1 second.

8. Completed fills
Value: Number.
Nothing can be entered in this function since it only displays the number of fills completed since the latest reset of the function.
To reset this function, press the <C> key.

9. Specific gravity
Value: Decimal number.
Enter the specific gravity of the liquid in g/ml if the required volume was entered in function 1, and if this volume is controlled by balance.

10. Filling rate
Value: Number of fills per minute.
Nothing can be entered in this function, since it only displays the current filling rate.

15. Input mode
Value: 1 or 2.
1 = The foot switch will only function as a starter.
2 = First press on the foot switch starts the filler.
Second press on the foot switch stops the filler.
Third press on the foot switch starts the filler.

18. Timer 2
Value: Seconds
Range: 0.0 to 25.5 seconds.
If the filler operates with a pneumatic diving nozzle, can a delay be set between the starting signal and the time the pump actually starts.

20. Operator number
An operator number of up to 10 digits can be entered in this function.
This operator number will appear on print-outs.

21. Batch number
A batch number of up to 10 digits can be entered in this function.
This batch number will appear on print-outs.

24. Print status
If a printer is connected, this function will start the printing of the current production status.

29. Print parameters
This function prints the current parameters via the connected printer.

31. Save program
Saves a complete set of parameters as a program.
It is possible to save up to 5 sets of parameters in the memory.

32. Load program
Loads a previously saved program and overwrites the current parameters with the values of t he loaded program.

33. Delete program
This function will delete the required program.

34. Print programs
This function prints the individual parameters in all the programs stored in the memory.

46. Select language
Value: An integral number.
This version offers a choice of 2 languages.

1 - English
2 - German

The languages will be active on the display and on the print-outs.

47. Printer set-up
Function 47 tells the system which protocol to use when transmitting to connected printer.
When this function is activated, it will first require the operator to enter the transmission velocity.
One of the following values must be chosen:

75 110 134 150 300 600 1200 1800 2000 2400 4800 9600

Subsequently DF32 will ask the operator to enter a protocol number. There is a choice between the following protocols:

1 :	7 data bits	1 stop bit	no parity
2 :	7 data bits	1 stop bit	even parity
3 :	7 data bits	1 stop bit	uneven parity
4 :	7 data bits	2 stop bits	no parity
5 :	7 data bits	2 stop bits	even parity
6 :	7 data bits	2 stop bits	uneven parity
7 :	8 data bits	1 stop bit	no parity
8 :	8 data bits	1 stop bit	even parity
9 :	8 data bits	1 stop bit	uneven parity
10 :	8 data bits	2 stop bits	no parity
11 :	8 data bits	2 stop bits	even parity
12 :	8 data bits	2 stop bits	uneven parity

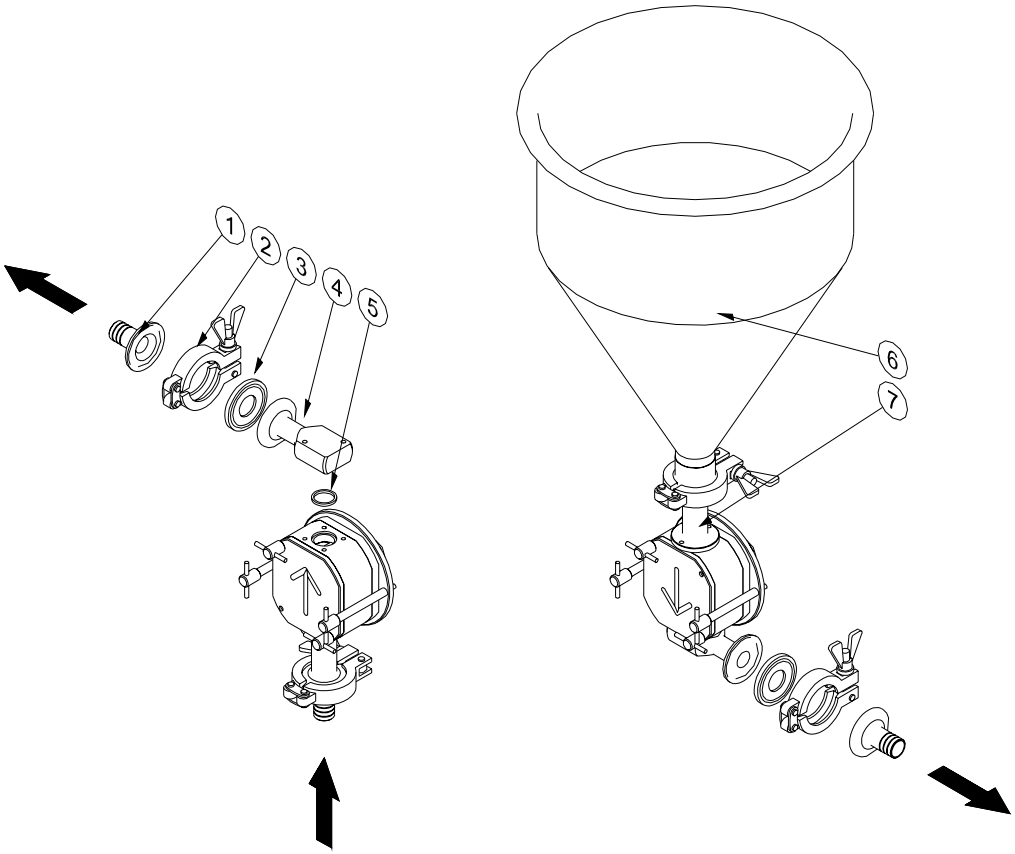
72. Volume format
This function sets the unit for volume. If the value 1 is chosen then the volume unit is set to ml and if value 2 is chosen then the volume unit is set to gram. The unit ml or gram is shown in F1 and log print outs.

80. Reset memory
This function will reset the memory with the exception of the part used for saving programs.
DF32 will pass into stand-by, and when switched on again the built-in parameters will be valid.

IF DF32 DOES NOT WORK OR DOES NOT OPERATE AS EXPECTED – ACTIVATE FUNCTION 80.

4: DAILY USE

4.1 Choice of product connections



Connectors Fig. 4

For product intake either a hose connector (1) or a hopper (6) can be used.
The higher viscosity of the product, the larger diameter of suction hose should be used.
For high viscosity products or sticky products, the hopper should be chosen for good product flow towards the pump.

Hose ID	Flexicon Part no.
½ “	84-080-125
¾ “	84-080-190
1 “	84-080-250
1½ “	84-080-380
Hopper 18 litres	88-350-010

When using hose for product intake, the connector (4) should be fitted to the pump.
When using hopper for product intake, the connector (7) should be fitted to the pump.
The seal rings (5) between the pump housing and the connectors, should always be in place, to ensure correct tightness of the pump.

NOTE: 2 of each of the following items are included with the DF32 filler:

2	Clamp ring (2)
3	Clamp seal (3)
4	Connector (4)
5	Seal ring (5)

4.2 "Step-by-step" assembly of pump head

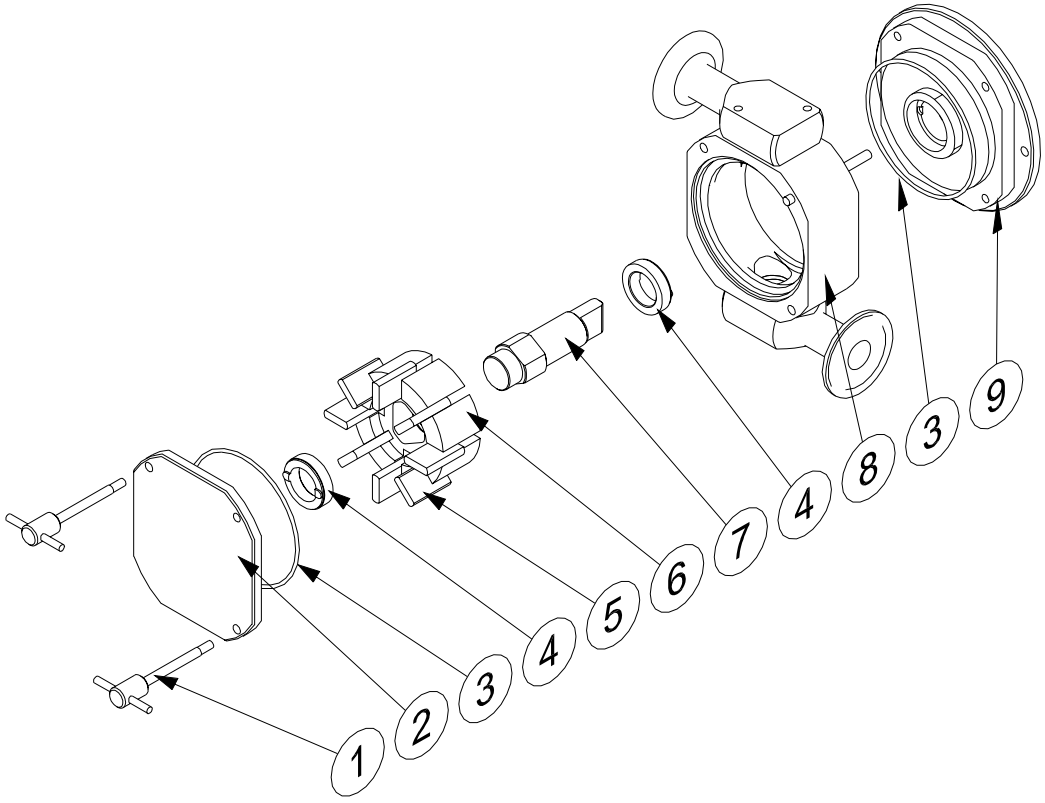


Fig. 5

Step	Action
1	Place the rear part (9) with the curved rim facing upwards. The centre hole should be placed above a hole or a grove with a depth of 5 cm.
2	Mount the O-ring (3) on the rear part.
3	Mount the bearing (4) in the rear part. Make sure that the bearing is correctly placed, and locked by the corresponding traces in the rear part.
4	Fit the pump housing (8) to the rear part. The longer pin on the pump housing should be fitted into the hole in the rear part which indicates correct positioning.
5	Mount the driving shaft (7) into the driving hub (6), and put both into the pump housing.
6	Mount the impeller plates (5) into the grooves of the driving hub.
7	Mount the O-ring (3) to the front part (2).
8	Mount the bearing (4) in the front part. Make sure that the bearing is correctly placed, and locked by the corresponding traces in the front part.
9	Fit the front part to the pump housing. A pin on the pump housing and a hole in the front part indicates correct positioning.
10	Close the pump head by fastening the finger screws (1) firmly.

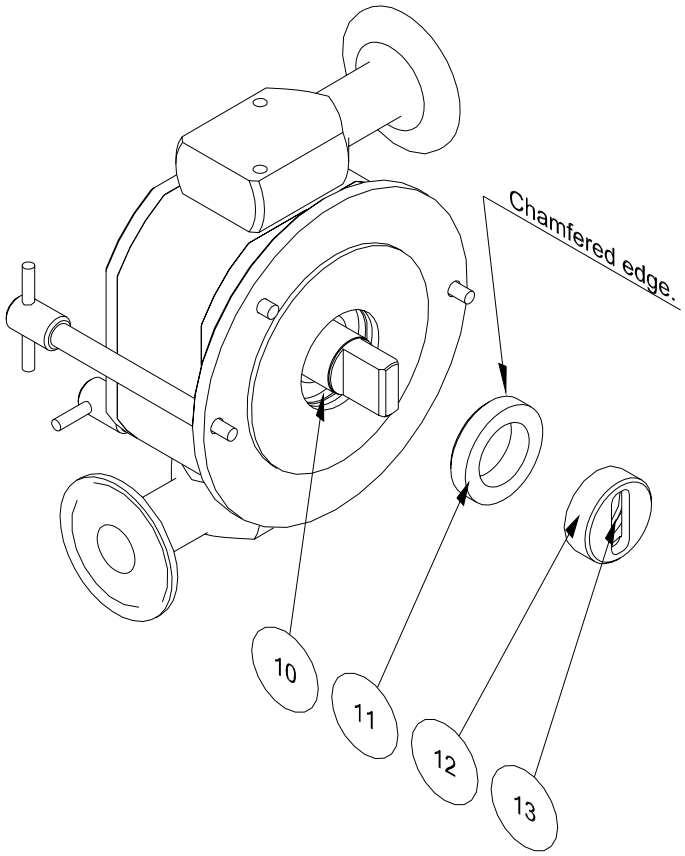


Fig. 6

Step	Action
11	Turn over the pump head and check that the O-ring (10) is correctly placed in the rear part of the pump.
12	Place the ceramic ring (11) in the rear part of the pump, and press it firmly towards the rear part. **NOTE: The chamfered edge on the ceramic ring must face towards the pump housing**
13	Check that the O-ring (13) is correctly placed in the shaft seal (12). Now mount the shaft seal on the shaft, and press firmly towards the ceramic ring.

4.3 Fitting the pump head to the machine

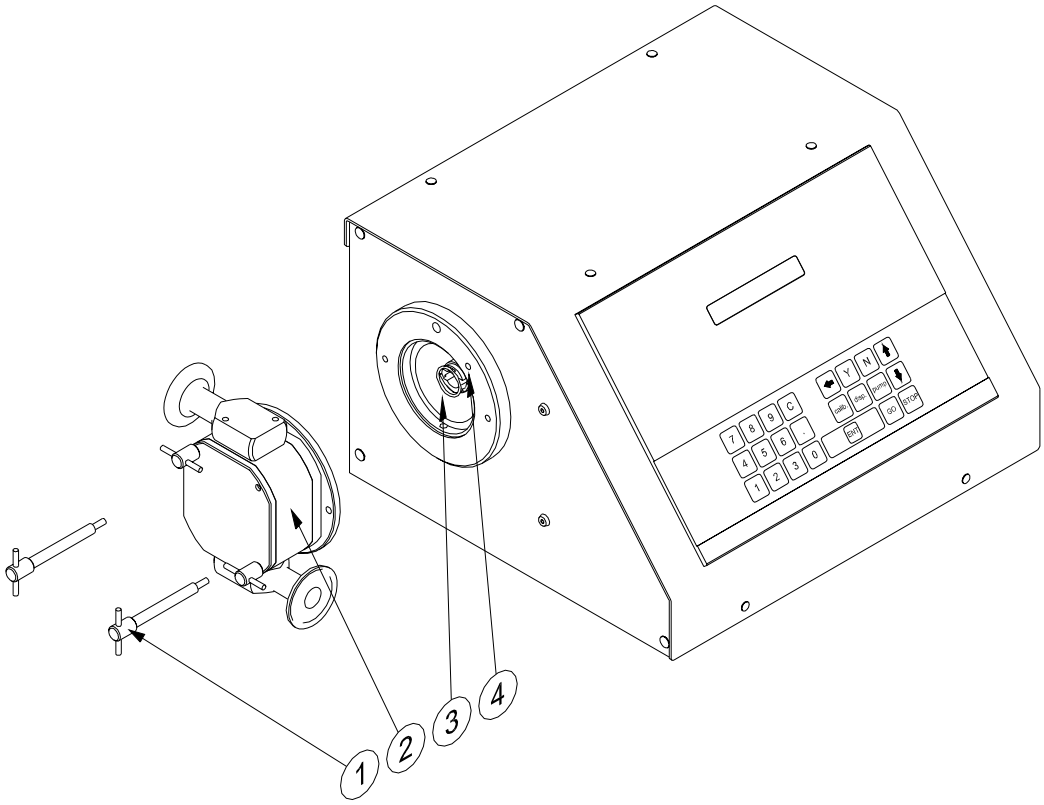


Fig. 7

Step	Action
1	Check correct position of the spring (3).
2	Align the end of the driving shaft on the pump (2) with the clutch of the machine, and turn the pump head until the pin on the pump housing fits into the corresponding hole in the flange (4). Now press the pump firmly towards the flange of the machine.
3	While maintaining the pressure – fit the two finger screws (1) through the rear flange on the pump to the flange (4) of the machine and fasten firmly.
4	Set up DF32 with product tubes and filling nozzles.

4.4 Used as a filler

Switch on DF32 and press <GO>.

Example of filling job:

Volume: 50 ml.
Velocity: 250 rpm.
Acceleration: 35.
Small back suction.
100 fills to be completed.
A delay of 1.1 seconds between the fills.
Product with specific gravity of 1.0
The above job is to be programmed as follows:

Volume:	<1>+<ENT>+<5>+<0>+<ENT>
Velocity:	<3>+<ENT>+<2>+<5>+<0>+<ENT>
Acceleration:	<4>+<ENT>+<3>+<5>+<ENT>
Back suction:	<5>+<ENT>+<1>+<ENT>
Number of fills:	<6>+<ENT>+<1>+<0>+<0>+<ENT>
Delay:	<7>+<ENT>+<1>+<.>+<1>+<ENT>
Specific Gravity	<9>+<ENT>+<1>+<.>+<0>+<ENT>

You have now programmed the DF32 for the job, but want to reset the built- in counters. In function 8 the counters indicate "number of completed fills".

Number of fills: <8>+<ENT>+<C>+<ENT>

Now inform DF32 that you want to enter filling mode by pressing <disp.>.
Every time <GO> or the foot switch is pressed, or every time an electric signal is given, DF32 will run 100 fills of 8.5 ml with a delay of 1.1 seconds between the fills.

Press <GO>, verify that DF32 starts and let it run.
Press ARROW DOWN until you see function 8 on the status line and that F8: is counting each fill.

F10: gives a current indication of the number of fills completed per minute.

The fills have not been calibrated. For this function, please see chapter 5 of this manual.

4.5 Stop filling

When DF32 has completed the number of fills asked for in DF32: it will stop automatically.
If <GO> is pressed again, DF32 will complete the programmed number of fills once more.

If you want to stop the filling before the programmed number has been completed, press <STOP>, and DF32 will stop after completing the filling in progress.
The filling series can be completed by pressing <GO>.

If you want to stop IMMEDIATELY, such as in the middle of a fill, press <STOP> twice, and DF32 will stop immediately.

The filling series can be completed by pressing <disp.>+<GO>, and the interrupted filling will be included.

4.6 Used as a pump

DF32 can also be used as a pump.

In this case only tube diameter and velocity should be entered.

Start the pumping by pressing <pump>+<GO>.

DF32 will start with the entered acceleration and run up to the required number of revolutions per minute.

DF32 will pump at this velocity until stopped by pressing <STOP>.

4.7 Used with a bottle handling system

DF32 can also be used together with a bottle handling system like FlexFeed 20 from Flexicon.
When DF32 is integrated in an automatic bottle handling system, it is important to observe the following:

The batch size in case of running with a bottle handling system must be set to 1.
The DF32 should be in dispense mode before starting the fill sequence.
The Go signal which activates filling should be generated by the bottle handling system.
The Go signal should be inserted into DF32 via External Go port.

For information on External Go port, please refer to section 7.1.

5: CALIBRATION

As the surroundings of the DF32 may vary from time to time and as pump head and products have small tolerances, it is necessary to calibrate the filler when it is started.

If the quantity has been entered as volume in ml, a measuring cylinder or a balance may be used as a control and measuring unit. The balance will always be the more accurate, especially for small quantities.

The calibration in DF32 is made as following.
This re-calibration can be carried out simultaneously with the fills.

! The DF32 should always be re-calibrated after changing any of the pump parameters: That is: Volume, Velocity, Acceleration or Reversing!

5.1 Volume calibration with measuring cylinder

IF A VOLUME HAS BEEN ENTERED IN FUNCTION 1, AND A COMPLETED FILL IS MEASURED IN A MEASURING CYLINDER,
THE SPECIFIC GRAVITY IN FUNCTION 9 MUST ALWAYS BE SET AT THE VALUE 1.0.

The parameters already entered may be used for a trial.

Prepare the measuring cylinder and make sure that the tubes are completely filled, up to and including the filling needle.

It is recommended to let the filler complete a few fills before the calibration is carried out.

Keep the measuring cylinder below the filling needle and press <calib>+<GO> to complete a single fill and DF32 will now ask the dispensed volume showing the following display :

CALIB. WEIGHT: 0.0000_
F 1: VOLUME (ml): 50.0

In the prompt line, DF32 prompts for the weight. THE WEIGHT MUST BE ENTERED, i.e. 48.5: <4>+<8>+<.>+<5>+<ENT>.

DF32 has now automatically adjusted from 48.5 ml to 50.0 ml.

Function 8 should now be reset, and the filling may be started by pressing <disp.>+<GO>.

5.2 Volume calibration with balance

IF A VOLUME HAS BEEN ENTERED IN FUNCTION 1, AND A COMPLETED FILL IS MEASURED WITH A BALANCE,
THE SPECIFIC GRAVITY OF THE LIQUID IN QUESTION IS TO BE ENTERED IN FUNCTION 9.

The parameters already entered may be used for a trial.

Prepare the balance by taring the container and make sure that the tubes are completely filled, up to and including the filling needle.

It is recommended to let the filler complete a few fills before the calibration is carried out.

Keep the tared container below the filling needle and complete a single fill by pressing <calib>+<GO> and DF32 will now ask for the completed volume showing the following display:

CALIB. WEIGHT: 0.0000_
F 1: VOLUME (ml): 50.0

In the prompt line, DF32 asks the weight, and the WEIGHT of the trial fill in question must be entered, i.e. 46.8: <4>+<6>+<.>+<8>+<ENT>

DF32 has now automatically adjusted from 46.8 g to 50.0 ml.

Function 8 should now be reset, and the filling may be started by pressing <disp.>+<GO>.

5.3 Re-calibration

During production it may be necessary to recalibrate the volume dispensed by the filler to compensate for changes in the environment e.g. the liquid level of the feed vessel will sink. This re-calibration may be carried out without stopping the filling.

IT IS IMPORTANT TO USE THE SAME MEASURING METHOD FOR THE RECALIBRATION AS USED FOR THE INITIAL CALIBRATION.

Draw off a filled sample and measure it. Subsequently, the procedure is the same as used when starting the filling series.

DF32 will now automatically adjust the subsequent fills.

6: PRINT-OUTS

DF32 can be connected to a printer (via RS-232) which can produce three different types of print-outs.

6.1 Print current parameters

Function 29 prints the current parameters, and print-outs should be made after programming and calibrating DF32 and resetting function 8.

The print-out is started in the following way:

<2>+<9>+<ENT>, and the following display will be shown:

```
F29 PRN PARAM (Y/N):_

F 1: VOLUME (ml): 50.0
```

Press the <Y> key to confirm start of printing, and the printer will start.

Example of print-out:

```
* Flexicon DF32 V1.1 *

OPERATOR    2641
BATCH NO.   9604084438

VOLUME (ml) 50.0
VELOCITY (rpm)      400
ACCELERATION        35
REVERSE     1
BATCH SIZE  100
DELAY (sec) 1.1
SPECIFIC GRAVITY (g/ml)   1.0000
NUMBER OF FILLS   0
```

6.2 Print current status

Function 24 prints the current parameters, and print-outs should be made after completion of the filling series.

The printing is to be started in the following way:

<2>+<4>+<ENT>, and the following display will be shown:

F24 PRN STATUS (Y/N):_
F 1: VOLUME (ml): 50.0

Press the <Y> key to confirm start of printing, and the printer will start.

Example of print-out:

* Flexicon DF32 V1.1 *

OPERATOR	2641
BATCH NO.	9604084438
VOLUME (ml)	50.0
FILLS PER MIN	17
NUMBER OF FILLS	100
AT FILL NO:	51
RECALIB VOL (ml):	48.7
AT FILL NO:	74
RECALIB VOL (ml):	47.9

In addition to registering the filling series, DF32 also registers when and from which value recalibrations were carried out.

If the print-out of the current parameters is left in the printer till the status print-out has been made, this will give a full production documentation which might look like the one shown overleaf.

* Flexicon DF32 V1.1 *

OPERATOR	2641
BATCH NO.	9604084438
VOLUME (ml)	50.0
VELOCITY (rpm)	250
ACCELERATION	35
REVERSE	1
BATCH SIZE	100
DELAY (sec)	1.1
SPECIFIC GRAVITY (g/ml)	1.0000
NUMBER OF FILLS	0

* Flexicon DF32 V1.1 *

OPERATOR	2641
BATCH NO.	9604084438
VOLUME (ml)	50.0
FILLS PER MIN	17
NUMBER OF FILLS	100
AT FILL NO:	51
RECALIB VOL (ml):	48.7
AT FILL NO:	74
RECALIB VOL (ml):	47.9

After the status print-out the printer memory is deleted automatically.

6.3 Print programs

Up to five programs can be stored in DF32, and a list of saved programs can be printed by means of function 34.

The printing is to be started in the following way:

<3>+<4>+<ENT>, and the following display will be shown:

F34 PRINT PROGS (Y/N):_
F 1: VOLUME (ml): 50.0

press the <Y> key to confirm start of printing, and the printer will start.

Example of print-out:

* Flexicon DF32 V1.1 *

PROGRAM NO.	1
VOLUME (ml)	50.0
VELOCITY(rpm)	250
ACCELERATION	35
REVERSE	1
BATCH SIZE	100
DELAY (sec)	1.1
SPECIFIC GRAVITY (g/ml)	1.0000

PROGRAM NO.	2
VOLUME (ml)	25.0
Velocity(rpm)	300
ACCELERATION	28
REVERSE	0
BATCH SIZE	500
DELAY (sec)	1.0
SPECIFIC GRAVITY (g/ml)	1.0100

7: INTERFACE

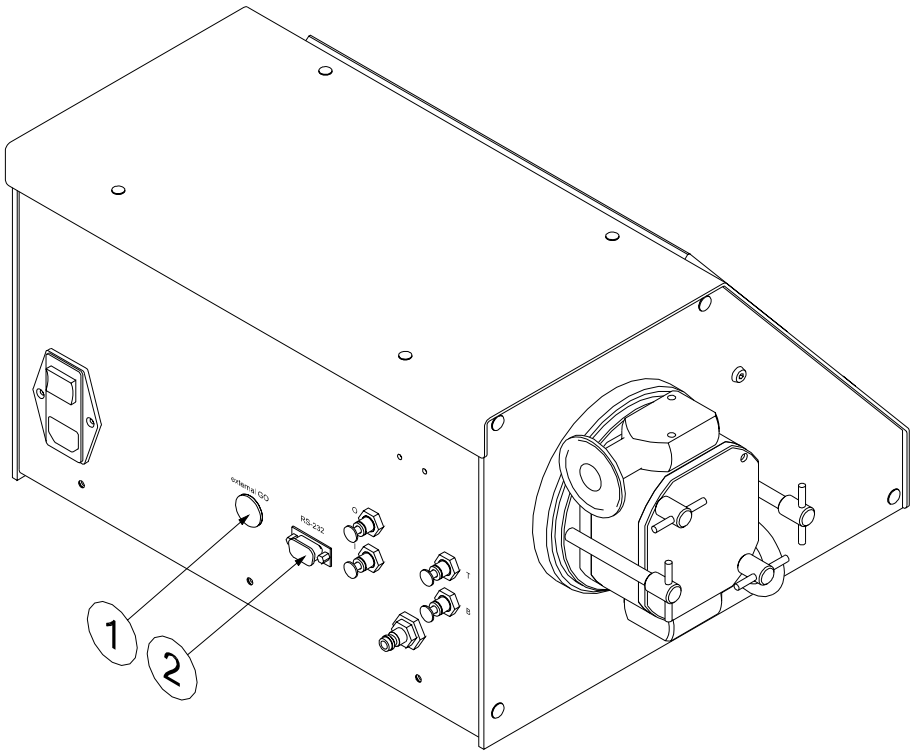


Fig. 8

DF32 has two electrical interface connectors.

(1) "External GO"

(2) RS-232

7.1 External GO

"External GO" is designed as a 5-pin DIN plug with the following PIN configuration:

PIN 1: Input for **start** signal. +5 - 50 VDC, min. 100 msec. positive edge-triggered.

PIN 2: Output, +24 VDC, max. 250 mA.

PIN 3: Ground.

PIN 4: **Status** output, max. +24 VDC, 100 mA.
Pin 4 is grounded via an open collector during filling.

PIN 5: **Status** output, max. + 24 VDC, 100 mA.
Pin 5 is complementary to Pin 4.

7.2 RS-232

RS-232 has a 9-pin SUB-D plug.

PIN 1: No connection

PIN 2: Receive data

PIN 3: Transmit data

PIN 4: +12 VDC (at 1 kOhm)

PIN 5: Ground

PIN 6: No connection

PIN 7: Request to send

PIN 8: Clear to send

PIN 9: No connection

7.3 Change of main power

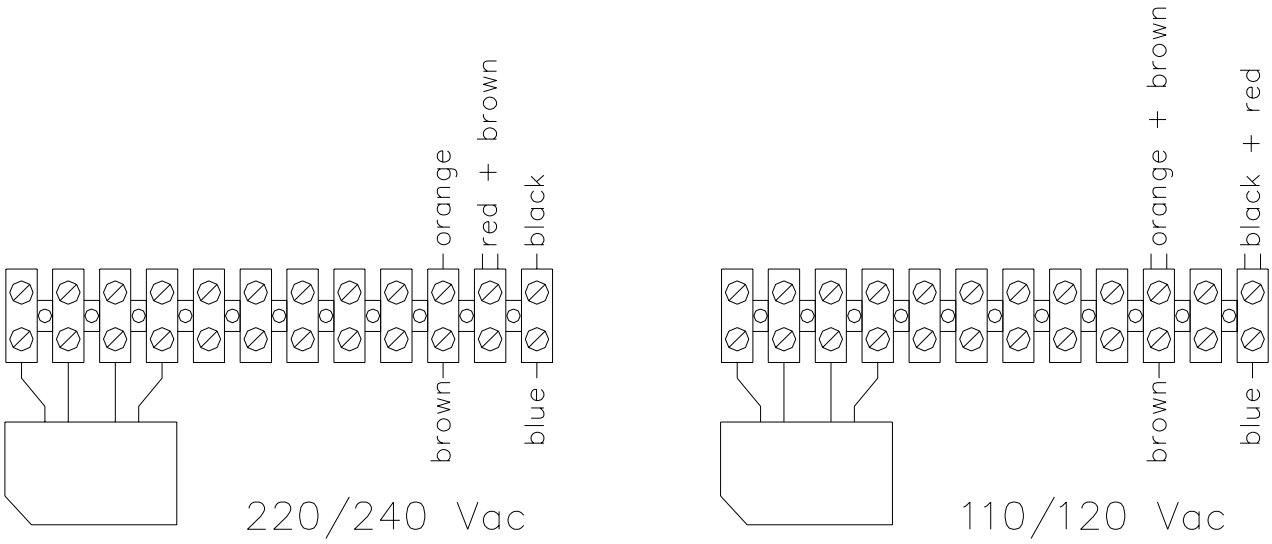


Fig. 9

DF32 can be switched between two different main powers.

The change over is carried out inside the machine by moving the wires to the positions indicated in Fig. 9.

8: CLEANING AND MAINTENANCE

8.1 Daily cleaning

As the cabinet of DF32 is not in direct contact with the dispensed product, daily cleaning will not be necessary except for the normal routine cleaning of production equipment.

When cleaning, please note that the cabinet of DF32 is not provided with sealing, and is to be considered as open. Therefore, liquids are NOT to be splashed onto DF32.
It may only be cleaned with a damp piece of paper towel or a cloth.

The cabinet is made of anodized aluminium and stainless steel, and normal detergents as spirit and isopropanol may be used.

As the pump head is intended for direct contact with the dispensed product it is made of materials, which can be washed in hot water with detergents. The components can all be autoclaved for sterility.
NOTE! The pump head must be dismantled while autoclaved.

8.2 Sterilisation

If DF32 is placed in an aseptic environment, the sterilisation may be made as described in section 8.1, or you may sterilise DF32 by gases observing the following precautions.

If you use gasses that might injure and corrode contacts and other metals, air slots and sockets MUST be covered with tape.

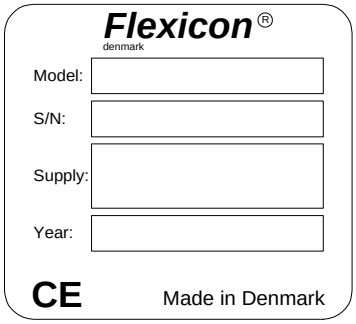
8.3 Maintenance

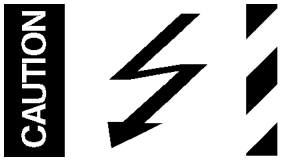
As all movable parts in DF32 are maintenance-free, no maintenance is required apart from normal cleaning of the equipment.

If service should be needed, please contact your supplier or Flexicon A/S.

Disposal:
The DF32 contain lithium batteries. The machines can be disposed in the same way as Personal Computers.

ANNEX A:





Annex B:

Sound pressure level: $L_{Aeq} < 70$ dB(a)

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